PROCEEDINGS

OF THE

ROYAL SOCIETY OF EDINBURGH.

Monday, December 18th, 1865.

SIR DAVID BREWSTER, President, in the Chair.

At the request of the Council, Professor WILLIAM THOMSON, LL.D., of Glasgow, delivered the following Address on the Forces concerned in the Laying and Lifting of Deep-sea Cables.

THE forces concerned in the laying and lifting of deep submarine cables attracted much public attention in the years 1857-58.

An experimental trip to the Bay of Biscay in May, 1858, proved the possibility, not only of safely laying such a rope as the old Atlantic cable in very deep water, but of lifting it from the bottom without fracture. The speaker had witnessed the almost incredible feat of lifting up a considerable length of that slight and seemingly fragile thread from a depth of nearly $2\frac{1}{2}$ nautical miles.* The cable had actually brought with it safely to the surface, from the bottom, a splice with a large weighted frame attached to it, to prevent untwisting between the two ships, from which two portions of cable with opposite twists had been laid. The actual laying of the cable a few months later, from mid ocean to Valentia on one side, and Trinity Bay, Newfoundland, on the other, regarded

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• Throughout the following statements, the word mile will be used to denote (not that most meaningless of modern measures, the British statute mile) but the nautical mile, or the length of a minute of latitude, in mean latitudes, which in electric cable reckoning is taken as 6,073 feet. For approximate statements, rough estimates, &c., it may be taken as 6,000 feet, or 1,000 fathoms.